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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/915,093	07/25/2001	Brent M. Segal	112.020.125	5567

7590
Peter M. Dichiaro
Hale and Dorr LLP
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Boston, MA 02109

09/26/2003

EXAMINER

COLEMAN, WILLIAM D

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 09/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/915,093

Applicant(s)

SEGAL ET AL.

Examiner

W. David Coleman

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A

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 1-22 and 35-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group I invention claims 1-2235-43 in Paper No. 11 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 23-29 and 31-34 rejected under 35 U.S.C. 102(e) as being anticipated by Rueckes et al., WO 01/03208.
4. Rueckes discloses an electromechanical circuit as claimed. See **FIGS. 1-17** where Rueckes teaches the claimed device.
5. Pertaining to claim 23, Rueckes teaches an electromechanical circuit, comprising:
a structure having electrically conductive traces 201, 201 (in **FIG. 8**) and supports **210** extending from a surface of the substrate **215**;
nanotube ribbons **32/18** (as seen in FIG. 2) suspended by the supports that cross the electrically conductive traces, wherein each ribbon comprise one or more nanotubes.
6. Pertaining to claim 24, Rueckes discloses the circuit of claim 23 wherein the electrically conductive traces are doped silicon traces (pp. 9, line 9).

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7. Pertaining to claim 25, Rueckes discloses the circuit of claim 23 wherein the electrically conductive traces are nanotubes.
8. Pertaining to claim 26, Rueckes discloses the circuit of claim 23 wherein the electrically conductive traces are ribbons of nanotubes.
9. Pertaining to claim 27, Rueckes discloses the circuit of claim 23 wherein the supports are rows of material and wherein the traces are substantially parallel to the rows (see FIG. 8).
10. Pertaining to claim 28, Rueckes discloses the circuit of claim 27 wherein the traces are separated from the supports (please note that the traces are separated between the supports).
11. Pertaining to claim 29, Rueckes discloses the circuit of claim 27 wherein the traces contact the supports.
12. Pertaining to claim 31, Rueckes disclose the circuit of claim 23 wherein the electrically conductive traces are over a layer of insulating material (SiO₂) to electrically isolate the traces relative to one another.
13. Pertaining to claim 32, Rueckes discloses the circuit of claim 23 wherein the electrically conductive traces are each over insulating material to electrically isolate the traces.
14. Pertaining to claim 33, Rueckes discloses the circuit of claim 23 wherein ribbons are of a non-woven fabric of nanotubes.
15. Pertaining to claim 34, Rueckes discloses the circuit of claim 23 wherein the ribbons are substantially a monolayer of nanotubes (see examples 1 and 2 on pp. 23 and 24).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rueckes et al., WO 01/03208 as applied to claims 23-29 and 31-34 above, and further in view of Fraser, U.S. Patent 6,443,901 B1.

18. Rueckes discloses a semiconductor device substantially as claimed. However, Rueckes fails to teach the circuit of claim 23 wherein the supports are made from silicon nitride. Fraser teaches a microelectromechanical device having silicon nitride supports. Please see **FIG. 1** where Fraser teaches silicon nitride supports **16** as part of a MEMS device. In view of Fraser, it would have been obvious to one of ordinary skill in the art to incorporate the silicon nitride supports of Fraser into the Rueckes semiconductor device because insulating support 16 may be made of silicon nitride (column 2, lines 50-51).

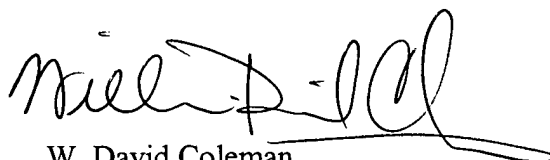
Conclusion

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. David Coleman whose telephone number is 703-305-0004. The examiner can normally be reached on 9:00 AM-5:00 PM.

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20. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

21. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

A handwritten signature in black ink, appearing to read 'W. David Coleman', with a long horizontal flourish extending to the right.

W. David Coleman
Primary Examiner
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WDC